

halos, with four mock moons, presenting a display of remarkable brilliancy and great perfection, were observed between 9 and 10 p. m. on the night of the 14th in central Colorado, the stations of Pike's Peak, Denver and Colorado Springs having opportunity for complete observations. From Denver two paraselenæ were observed at points where the parhelic circle cut the halo of 22° radius and two where the intersection would have taken place if there had been present a halo of 90° radius; at a point about 85° above the horizon there appeared a brilliant inverted rainbow arch in the position where a halo of 46° radius would have passed.

MISCELLANEOUS PHENOMENA.

Earthquakes.—Salinas City., Cal., 2nd, (no time given,) motion from north to south; pendant bodies freely vibrated. Visalia, Cal., 1st, 4:11 p. m., three shocks in rapid succession, lasting altogether about two seconds; motion southeast to northwest; 9:53 p. m., another rapid succession of shocks, two in number, and continuing for about two seconds; vibrating motion from south east to northwest; force displayed less severe than former.

Meteors.—Mt. St. Helena, Cal., 11th, 7:30 p. m., very brilliant; course NE. to SW.; upon exploding produced a loud report, which was experienced for several miles around. San Francisco, 2nd, 9:45 p. m., very large and brilliant; passed over city to the northeast; color pale green. Deadwood, 19th, 11 p. m., very brilliant; course SE. to NW.; 27th, 11 p. m., course E. to W.; exploded with fragments like a rocket.

Sunsets.—The characteristics of the sky at sunset as indicative of fair or foul weather for the succeeding twenty-four hours have been observed at all Signal Service Stations. Reports from 174 stations show 4,846 observations to have been made, of which 22 were reported doubtful; of the remainder, 4,097 or 84.9 per cent. were followed by the expected weather.

Sun Spots.—The following record of observations, made by Mr. D. P. Todd, Assistant, has been forwarded by Prof. S. Newcomb, U. S. Navy, Superintendent Nautical Almanac Office, Washington, D. C.:

DATE— Feb., 1881.	No. of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		REMARKS.
	Groups	Spots.	Groups	Spots.	Groups	Spots.	Groups	Spots.	
2, 10 a. m.	0	5	0	10	0	5	5	35†	
3, 9 a. m.	0	0	0	10	0	0	4	25†	
4, 9 m.	0	0	0	10	0	10	4	25†	Faculae.
5, 9 a. m.	0	5	2	5	0	5	2	25†	Faculae.
6, 10 a. m.	2	15	0	0	1	4	4	40†	Faculae.
7, 1 p. m.	0	0	0	0	0	0	4	40†	
10, 3 p. m.	0	0	1	20†	0	0	3	15†	Spots probably disappeared by solar rotation.
11, 8 a. m.	1	3	0	3	0	0	4	15	Faculae.
12, 10 a. m.	0	0	1	5	0	0	3	10	Faculae.
13, 9 a. m.	0	0	0	0	0	0	3	10	Faculae.
14, 9 a. m.	2	4	1	2	2	4	4	12	Faculae.
15, 9 a. m.	2	5	0	0	0	0	6	17†	Faculae.
16, 8 a. m.	0	5	0	0	0	0	6	20†	} Broad areas of faculae.
4 p. m.	0	0	0	0	0	0	6	20†	
17, 9 a. m.	1	5	0	0	0	0	6	25†	} Faculae. Two of the spots very large.
19, 4 p. m.	2	8	2	20†	2	8	6	13	
20, 10 a. m.	1	10	1	1	0	0	6	22	} Faculae. Two of the spots very large.
2 p. m.	0	0	0	0	0	0	6	22	
23, 6 a. m.	2	6	3	12	1	2	5	12	} Faculae. Spots probably disappeared by solar rotation.
25, 5 p. m.	0	0	0	0	0	0	5	10	
26, 9 a. m.	0	0	1	1	0	0	4	8	Faculae.

† Approximated.

Mr. William Dawson, at Spiceland, Ind., reports: 2nd, three groups and about 25 spots; large spot at east edge and another at west edge. 13th, two large spots close together, midway between centre and west edge. 15th, six groups, 24 spots; faculae at east side; air very good. 17th, six groups, 26 spots; large spot close to east edge. 19th, four groups, 9 spots; air poor; 21st, six groups, 23 spots, one large, 11 others quite prominent. 22nd, six groups, 45 spots; one very large spot alone in the SW. quadrant; best air for many weeks. 25th, five groups, 16 spots; new group and faculae at east edge; faculae at west edge; air middling good.

Mr. H. D. Govey, at North Lewisburg, Ohio, reports: saw sunspots every day except on the 4th, 6th, 8th to 10th, 12th, 13th, 18th, 20th, 27th and 28th, when it was too cloudy for observation.

NOTES AND EXTRACTS.

[From the Popular Science Monthly, March, 1881.]

Climatology of Europe.—The climate of Western Europe is ameliorated by the warmth of the Gulf Stream in winter, and by the neighborhood of the ocean in summer. In Eastern Europe these modifying influences cease to be felt, and the climate gradually assumes a continental character, with greater differences of temperature, colder winters and warmer summers. The differences in the summer temperatures of the eastern and western regions are less marked than those in the winter temperatures, and amount at most to about 27°. For the greater part of the continent the